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ABSTRACT

Potential sources of invalidity relevant to evaluation approaches are identified, described, and categorized. The evaluation focus covered is the determination of a program's worth, not the determination of the presence of cause-and-effect relationships. Concern has been expressed by evaluators about the presence and effect of biases and their possible threat to the validity of the conclusions. Validity threats that are discussed in articles in psychology, sociology, and related fields, and were also mentioned in evaluation literature are considered. A list of 15 potential validity threats was compiled. From their psychological and sociological nature, these biases are likely to occur to some degree when using most evaluation approaches. Decision-oriented, client-oriented, and connoisseur-based studies are susceptible to more of these biases than policy, accountability, or objectives-based studies. The author suggests that knowledge of these 15 sources of invalidity could facilitate less biased evaluative judgments. That is, if during a formative evaluation it is discovered that there is a bias present, such as relativity of data, then alternative ways of gathering data may be introduced, or program criteria may be reassessed. This checklist of biases could prove a useful tool in a meta-evaluation. (Author/PN)

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BIASES: THREATS TO VALIDITY IN EVALUATION MODELS

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Biases: Threats to Validity in Evaluation Models

One focus of research rests on the need to identify cause-and-effect relationships. In an effort to infer cause, researchers utilize experimental or quasi-experimental designs. Experiments are more or less internally valid depending on how well extraneous variables have been controlled by the researcher. Failing to control for the effects of these extraneous variables prohibits the researcher from fully knowing whether the observed changes were due to some experimental treatment or to extraneous variables. These extraneous factors which can lead to spurious inferences are called "threats to validity" by Cook and Campbell (1979). The threats discussed by Cook and Campbell range from statistical regression effects to resentful demoralization of respondents receiving less desirable treatments. In all cases, these are threats to validity of inferences from quantitative analyses.

An educational evaluation, in general, is "one that is designed and conducted to assist some audience to judge and improve the worth of some educational object" (Stufflebeam & Webster, 1980, p.6). The focus of an evaluation, then, is not necessarily to determine the presence of cause-and-effect relationships, but rather to help in the determination of a program's worth. As such, experimental designs may neither be sufficient nor appropriate. Thus the evaluator may sacrifice control in order to gain relevance to the immediate situation. That is, through observations, interviews, and test surveys, the evaluator strives to collect valid information. Since data are collected without the usual controls one finds in true experimental designs, the factors mentioned by Cook and Campbell (1979) might produce effects that are confounded with that of the treatment program. Moreover, the judgments made in

the course of an evaluation do not arise merely from quantitative data. Since evaluative judgments are also influenced by qualitative inferences, other opportunities for bias exist. These biases are just as much a threat to the validity of evaluation results, and may be so widespread as not to be made obvious by traditional checks, such as triangulation. Recognizing potential sources of invalidity is as important in evaluation as it is in research.

Authors in the field of evaluation (e.g., Cochran, 1978; Guba, 1980; Perloff, Padgett, & Brock, 1980; Scheirer, 1978; Scriven, 1975; The Joint Committee on Standards for Educational Evaluation, 1981; Weiss, 1973) as well as in the fields of psychology, sociology, and economics (e.g., Collins, 1970; Morgenstern, 1963; Nisbett & Ross, 1980) have identified various types of biases that can exist in social settings. Many have expressed concern about how they can skew results and alter conclusions drawn. Awareness of these factors is necessary, because as Wolf (1979) points out, to have a truely in-depth evaluation, one must go "beyond mere descriptive information or psychometric displays and explore why certain things happen the way they do and under what circumstances" (p.12). In other words, for greater understanding of evaluative results, one must be aware of those major factors that can cause invalidity.

The purpose of this study was to identify, describe, and categorize potential sources of invalidity relevant to evaluation approaches. Those threats were considered that appeared in more than one article in psychology, sociology, and related fields and were also mentioned in evaluation literature. The result was a list of 15 factors that can be thought of as possible sources of bias in an evaluation setting.

For ease in presentation, these 15 biases have been grouped into four categories:

Biases from Judgmental Strategies
Biases from a Knowledge Base
Biases from Social Interactions
Biases from Expected Gains

The basis for the first two categories rests on distinctions made by Nisbett and Ross (1980) in the area of psychology. The biases from Social Interactions were drawn mostly from research done in social psychology and sociology. Biases from Expected Gains is a title given to account for those threats well acknowledged in the area of evaluation by such authors as Weiss, Scriven, Stufflebeam, and Guba.

A description of each of these 15 biases listed below is given on the following pages.

Biases from Judgmental Strategies
- Bias due to passage of time
- Contextual bias
- Retrievability bias
- Salience bias
- Concreteness bias
- Bias from ex post facto judgment
- Hypothesis-confirming bias
- Consistency bias

Biases from a Knowledge Base
- Insensitivity to statistical principles bias
- Reactivity of data
- Knowledge structure bias

Biases from Social Interactions
- Group membership bias
- Social influence bias

Biases from Expected Gains
- Political bias
- Payoff bias

Potential Biases in Evaluation Settings

Biases from Judgmental Strategies

* Bias due to passage of time

Information collected from individuals can vary in accuracy depending on whether it was collected soon after the event or some time hence. Details concerning past events are more likely to be forgotten and thus must be partially reconstructed by the person from whom the evaluator is collecting the information. As a result, the accuracy of the information depends on when the evaluator chooses to collect information. The same bias can also affect an evaluator; if too much time elapses after an observation or interview, information may be lost. However, the less the intervening time, the less chance there is that this bias will occur.

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* Contextual bias

A program is always connected to and dependent on a wide variety of contextual factors. Participants may attribute their own behavior to such situational factors. However, observers are more apt to explain participant behaviors as stemming from the participants' own personal characteristics. Thus, from the two perspectives, conflicting judgments of behavioral causes would be obtained. The context in which the program, project, or material exists should be examined in enough detail so that its behavioral influences and causal assessments can be identified from multiple perspectives in order to avoid biasing the evaluation.

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* Retrievability bias

Judgments can be disproportionately influenced by those facts that are more easily retrieved from memory and relatively uninfluenced by those facts that are more difficult to recall at the time the judgment is made. The more easily an event comes to mind, the more quickly people are to judge it a characteristic event. This bias can occur during data collection when people are asked to recall occurrences of particular events. The more vivid and easier it is to remember, the more likely certain events are said to occur. As a result, inaccurate event estimates will be obtained. Those estimates that use objective criteria, such as recorded frequencies and checklists immediately after an event, and do not rely on subjective ease of retrieval from memory will not be affected by this bias.

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* Salience bias

Since observers cannot attend to all aspects of a setting at once, those stimuli that are most distinctive can draw a disproportionate amount of the observer's attention. Consequently, more information may be gathered about the salient stimuli than non-distinctive stimuli. When someone is viewed as distinctive, such as a white member of a predominately black group, this salient member may be perceived as having more influence over the course of events. Thus, this bias could affect an evaluator's perceptions and interpretation if attention is readily or frequently drawn to a certain prominent individual or event. In using a planned observation schedule, this bias is not as apt to occur.

Rererences

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* Concreteness bias

Concrete types of information can have a greater impact on decision making than more abstract data. In other words, an interesting example may hold more credence than statistical data which are farther removed from the individual. This bias could affect program decision making if decisions are based on less reliable, highly concrete data that are easier to remember. Evaluators, too, may assign more weight to concrete information than is warranted.

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* Bias due to ex post facto judgment

When an effect is observed, people often look back into the past for its causes, and usually settle on a cause that satisfies the need for a simple, sufficient explanation. This bias could occur if an evaluator is called in after the program is underway and asked to evaluate phenomenon that has already occurred; he may not have a full understanding of the possible causes, but settle on one that appears parsimonious. Consequently, the resulting report may contain erroneous and misleading interpretations of evaluative data.

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* Hypothesis-confirming bias

People can formulate hypotheses which affect their future perceptions and judgments. Once an hypothesis is formed, additional information is viewed in such a way as to support rather than disconfirm the expectation. This form of bias may occur during data collection when the evaluator unintentionally seeks out certain information and ignores other information. Thus, an evaluator, by his actions and responses, may encourage others to offer data, which is then used to support the evaluator's hypotheses.

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* Consistency bias

To justify their having participated in a program, people will tend to report positive feelings about the program. In addition, individuals will strive to maintain consistency between initially positive feelings from participating in the program and their later judgment about the program's overall success. Otherwise, participants would have to admit that their initial perceptions were not "perceptive." Thus participants might bias their evaluations of a program to remain consistent with their initial beliefs and to justify any expenditure of effort. The evaluator, especially in a formative evaluation, may bias his report in a positive direction in order to reduce any dissonance created by working hard to improve a "worthless" project; that is, his effort was indeed a valuable contribution to making the program succeed.

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Biases from a Knowledge Base

* Insensitivity to statistical principles bias

People's knowledge base concerning statistical principles can cause errors in many ways. For example, when program directors make predictions about populations, adequate weight may not be assigned to the size of their sample. Even evaluators can be insensitive to sample size, and are willing to draw strong inferences about a population from knowledge about a small number of subjects. Drawing conclusions about a program from a small number of interviews is a case in point.

Program directors can also be insensitive to considerations of randomness versus bias in sample selection. As such, they may not be sufficiently concerned about the possibility that the available data may be unreliable. Consequently, they may make frequent inferential errors.

Another instance of this bias can occur with the concept of regression to the mean. Program directors do not expect it when it is likely, and when it is recognized they try to invent erroneous causal explanations for it. Evaluators with a research background probably are not as prone to this particular bias.

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* Reactivity of data

The production of data affects the situation being evaluated in regard both to what is observed and how it is interpreted. For example, current records kept by a program will influence what information base the evaluator will use. Moreover, an evaluator may assume that detailed published records imply accurate record keeping, which it may not.

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* Knowledge structure bias

People's understanding of events may depend largely on their store of general knowledge of objects, people, events, and their characteristic relationships. In other words, people view and understand the world through their own interpretative framework; one that reduces ambiguity and supplements much of the information "given" with "assumed" information. This bias is likely to occur when an evaluator does not verify his assumptions.

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Biases from Social Interactions

* Group membership bias

People may internalize biased or one-sided information if they are a member of a social

group that has strong feelings one way or another. For instance, program clients may hold strong views against the program if they see the staff as being representatives of that sector of society that has "abused" them. Evaluators, moreover, are more apt to agree with the program staff and view the program favorably if they "belong" to the group as an internal evaluator. Similarly, this bias could affect any participant observations made by the evaluator.

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* Social influence bias

Social influence has been found to vary as a function of perceived competence. Evaluators who are perceived as competent and credible are more apt to have positive relationships with program participants. Those evaluators who are not seen as credible may receive only partial information, skewing their results. A competent evaluator may be seen as an "authority" through the eyes of his client, and consequently, have the right to dictate behavior and opinions. In this case, suggestions or recommendations made by the evaluator may have an impact on the program or alter participant opinions. Bias of this nature is likely during interviews where participants distort their responses in order to please or identify with the "expert." Likewise, if the evaluator is not seen as an expert, he may not get all the information.

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Biases from Expected Gains

* Political bias

A political bias can have an impact on an evaluation in many ways. Politics can affect the variables selected (or not) for study, the criteria brought (or not) to bear on the evaluation, the evaluation design used, techniques of data collection, and actual sources of data. On the one hand, this bias may result from clients or staff members selecting objectives

or information in order to improve their influence. On the other hand, the bias may result from the evaluator's selecting information, designs, or techniques that are biased in favor of one special interest group.

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* Payoff bias

This bias can occur when opinions or information are altered so as to achieve some immediate payoff or to avoid a loss. Programs can provide a variety of rewards to both staff and clients simply by their participation. As a result, participants are more apt to bias their questionnaires and interview responses in a positive direction. Data also may be "corrupted" or manipulated in order to put the program in a favorable light to protect jobs, to gain favorable personal evaluations, to preserve the reputation of the program administration as well as the program. Evaluators are often faced with the possibility of their own contract not being renewed if the study does not turn out "right."

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Many researchers, such as Cook and Campbell (1979) have recognized how threats to validity can produce biased data in the context of an experiment or quasi-experiment. Cook and Campbell stress that the investigator must be aware of the likelihood of these threats occurring and, when feasible, arrange the situation so as to rule out as many as possible. It is only after accounting for these threats can there be any confidence in the outcome results and judgments made.

Concern has also been expressed by evaluators about the presence and effect of biases and their possible threat to the validity of the data. Information collected in an evaluation should be carefully analyzed to see if biases have altered the results or confounded the treatment effect. This necessitates having an understanding of biases that can alter preceptions and data input from program participants, staff, and evaluators.

From the psychological and sociological nature of these biases, these threats to validity are apt to occur in most, if not all, evaluation approaches to some degree. Decision - oriented, cliented - oriented, and connoisseur - based studies are susceptible to more of these biases than policy, accountability, or objectives - based studies. That biases are more likely to affect evaluation judgments in what Stufflebeam and Webster (1980) call "true evaluations" could stem from the multiple purposes and broader aims that these approaches pursue. True evaluations attempt to gather more data under various conditions to answer more evaluative questions.

In conclusion, knowledge of these biases could prove useful to those in evaluation. Discussion of these sources of bias could stimulate

students to explore the issue of validity threats in making qualitative judgments. These biases could be consulted during the course of a formative evaluation. If during the evaluation it is discovered that there is a bias present, such as reactivity of data, then alternative ways of gathering data may be introduced, or program criteria may be reassessed. Or, since "evaluators have come under much pressure to insure and demonstrate they are doing quality work" (Stufflebeam, 1974, p.3), this list of biases could prove a useful tool in a meta-evaluation. As Stufflebeam noted, the tools available for conducting meta-evaluations are not extensive. Evaluators, expecially when performing decision-oriented or connoisseur - based studies studies, could consult a list of these biases as a type of checklist. For instance, evaluator judgments could be checked to see if they were unduly influenced by some highly memorable event, or by political pressures. If we, as evaluators, are aware of the possible existence of these biases, we can attempt to take the effects of these threats into account in our evaluative assessments.

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